

## CLUSTAL W(1.60) multiple sequence alignment

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UserP:Human_NEDD_4
UserP:Mouse_NEDD_4 HACSNPAPQASRAAAERVPPLAARPCTPARSRSGPPPPQRRLLLLFLSPSLSVSRSLSP
UserP:ZGGBP

UserP:Human_NEDD_4 SRFSSSSSTVACPGH GRARP -- -VCW
UserP:Mouse_NEDD_4 LQPSRGASSSMSSDMAADESEAPVLSEDEVWEFCLDKTEDGGGSPGSDVTDTCPEPPCGCW
UserP:ZGGBP MFLRLSWASSTGSRYS AFCGSP ---

UserP:Human_NEDD_4 KRS EMATCAVEVFGLLEDEENSRI
UserP:Mouse_NEDD_4 ELNPNSLEEELVLTADPYLELHN DDTRV
UserP:ZGGBP TLAWCVCPVCYGES R1
*****

UserP:Human_NEDD_4 VP
UserP:Mouse_NEDD_4 VP
UserP:ZGGBP VP
*****

UserP:Human_NEDD_4 LYPLPTENPRIERPYPYTFDFVLHPRSHKSFVKGYLRKMTYLPKTSGSSEDDNAEQAELEE
UserP:Mouse_NEDD_4 LYPLPTENPRMERPYTFDFVLHPRSHKSFVKGYLRKMTYLPKN GSEDENADQAELEE
UserP:ZGGBP LSHLPTEDPTMEFPYTFDFLLRPRSHKSFVKGYLRKMTYLPKN GSEDENADQAELEE
*****

UserP:Human_NEDD_4 PGWVVDQPDAAACHLQQQQEP QDNL
UserP:Mouse_NEDD_4 PGWVVDQPDAAATHLPHPEP DDL
UserP:ZGGBP HGWEVVDSDNSASQHQEELPPP SLMDVSS
*****

UserP:Human_NEDD_4 DAEN--GNIQLQAQRAFTTRRQISEETES -VDNQESSENWEIIREDEATMYSSQAFPS
UserP:Mouse_NEDD_4 DEDN--DDMQLQAQRAFTTRRQISEVDG -PDNRESPENWEIVKEDENTEYSGQAVQS
UserP:ZGGBP ESDNNIRQINQEAHRRFRSRHISEDLFPEPSEGGLVPEPWETISEEVNIAGDSLGVVL
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UserP:Human_NEDD_4 PPP--SSNLDVPTHAEELNARLTIFGNSAVSQPASSN HSSR RGSQAYTFEEQP
UserP:Mouse_NEDD_4 PP--SGHIIQVTHLAEFNTRLAVCGNPATSQPVTSSN HSSR GGSQAYTFEEQP
UserP:ZGGBP PPPASFGSRTSPQELSEELSRRLQITPDNGEQFSSLIQPEPSSPLRSCSVTDAVAEQG
*****

UserP:Human_NEDD_4 TLP--VLLPTS QATVETSQLTSSQ
UserP:Mouse_NEDD_4 TLP--VLLPTS Q-
UserP:ZGGBP HLPPPSVAVVHTTPG IMQLAEDGASGSATN
*****

UserP:Human_NEDD_4 SS AGPQSQA STSDS GQVQTQS
UserP:Mouse_NEDD_4 D
UserP:ZGGBP SINHLIEPQIFRFRSLSSPTVTLXAPLEGAKDSPVRFAVETLSNFPQSPQSPYNSPKPQ
*****

UserP:Human_NEDD_4 EIEQ FIPAHLPFGTSLDTSNDL
UserP:Mouse_NEDD_4 DFFSFIPAHLPFGTSLDTSNDL
UserP:ZGGBP HKVTQSF FLKFPVHMPKSTSLN PNDLGP
*****

UserP:Human_NEDD_4 ENVAITGPAVPYSPDYFRKYEFFFRKLK
UserP:Mouse_NEDD_4 QHVAITGPAVPYSPDYFRKYEFFFRKLK
UserP:ZGGBP FLQHPAITGPAVPYSPDYFRKYEFFFRKLK
*****

UserP:Human_NEDD_4 QNDIPNFFEMFLRRATVLEDSYRFIMGVFRADFLFARLWIEFDGEFGLDYGGVAFWFFL
UserP:Mouse_NEDD_4 QNDIPNFFEMFLRRANILEDSYRFIMGVFRADFLFARLWIEFDGEFGLDYGGVAFWFFL
UserP:ZGGBP PNDIPNFFEMFLRRANILEDSYRFIMGVFRADFLFARLWIEFDGEFGLDYGGVAFWFFL
*****

UserP:Human_NEDD_4 ISPEMFNPYYGLFEYSATDNYTLQINPNSGLCHLHLSYFFFIGPVAGMAVYHGFLLDGF
UserP:Mouse_NEDD_4 ISPEMFNPYYGLFEYSATDNYTLQINPNSGLCHLHLSYFFFIGPVAGMAVYHGFLLDGF

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UserP:ZGGBP_1
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UserP:Human_NEDD_4 FIRPFYKMLLHKPITLHDMESVDSEYYNSLRWILENDPTELDLRFIIIDEELFGQTHQHEL
UserP:Mouse_NEDD_4 FIRPFYKMLLQKLITLHDMESVDSEYYSSLRWILENDPTELDLRFIIIDEELFGQTHQHEL
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4 KNGGSEIVVTNKNKKEYIYLVIQWRFVNRIQKQMAAFKEGFFELIPQDLIKIFDENELEL
UserP:Mouse_NEDD_4 KNGGSEIVVTNKNKKEYIYLVIQWRFVNRIQKQMAAFKEGFFELIPQDLIKIFDENELEL
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4 LMCGLGDVDVNDWREHTK
UserP:Mouse_NEDD_4 LMCGLGDVDVNDWREHTK
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4
UserP:Mouse_NEDD_4
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4
UserP:Mouse_NEDD_4
UserP:ZGGBP_1
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Exhibit 3: Clustal W alignment of ZGGBP-1 to the human and mouse forms of NEDD-4. The functional domains identified using Hmm for ZGGBP-1 are shown in Red. The equivalent functional domains annotated in SwissProt for the human and mouse NEDD-4 are shown in green.